IN THE ANTHRAGITE FIELDS.

The Different Processes of Mining and Mar

keting Coal. Special correspondence of The Florida Star.

WILKESBARRE, Pa., Oct. 2.-For nearly a month the attention of the whole country has been especially directed toward this section, from which the world gets its greatest supply of hard coal. Columns upon columns have been written of late about the conditions and grievances of the miners, the vast output of the mines and the various phases of the great strike, though but little, so far as I have observed, has been contributed to that branch of the literature of coal which relates to the



A GROUP OF MINERS.

processes of bringing the dusky diamonds from the cavernous depths of the earth and getting them ready for the use of mankind.

The hillsides and valleys throughout the anthracite regions are dotted with huge coal breakers, about which are clustered the homes of the miners. It may be said for the benefit of the uninitiated that the breakers are large and very high shell buildings in which the coal as it comes from the mine is broken and sorted ready to be shipped. The great height is required in order that the coal, once elevated, will aid the various processes by its own gravity. The buildings, if old, are of wood; if new, are of steel or corrugated iron. The breaker does not stand out entirely alone, for within 100 yards of it stands the "dump," a slate pile, varying in size according to its age. It is composed of the refuse slate which it is impossible to separate from the coal in mining and which must therefore be separated in the breaker, and, as the proportion of slate is quite large and as there is no use to which it can profitably be put, it is piled by a system of chain buckets that can reach any distance and any height day after day and year after year in a growing heap whose size is only limited by the capacity of the mines. Naturally the slate pile is a very conspicuous adjunct to a breaker and surrounding country. It forms a very unique feature of the coal land scenery.

Shafts are sunk in the mountain sides at varying depths, from a few feet to several hundred feet, according to the location of the coal strata. Little if any surface mining is now carried on in the Wyoming district, which I recently visited, as the collieries that were a few years ago removing anthracite from near the surface and upper workings have been compelled to open up and develop the deeper deposits. Coal was, of course, much more easily and economically mined in the shallow seams, the natural air currents furnishing a portion of the ventilation, while common mining machinery was sufficient to do the work. Now the mines are sunk deeper, and new and improved and costlier machinery has superseded the old. Mammoth ventilating fans have been erected at the various collieries in the Wyoming district, and in some instances two of these immense accessions to the ventilation appliances are required in order to remove the great bodies of gases that accumulate in the workings of the lower seams, a menace to life and

Some years ago an output of 500 tons a day from a single mine was considered an excellent average product, but now there are numerous collieries where 1,500 or 2,000 tons of merchantable coal are raised from a single shaft. broken, sized, cleaned of slate and loaded for shipment to market from a single breaker in ten hours. This is equivalent to from 150 to 200 tons an hour as the yield of a shaft raising one car at a time. Some idea of the speed and precision with which the work is performed in these collieries may be gained from the fact that the time occupied in taking from the hoisting eage the loaded mine car carrying from two to three tons of coal and pushing the empty car back on the cage is less than six seconds in regular work, or the time from the instant the cage shows itself coming upout of the shaft until it disappears going down again, working almost as uniformly as the beat of a pendulum, of the shaft is anywhere from 400 to boys before it reaches the various is about seven seconds. And the depth

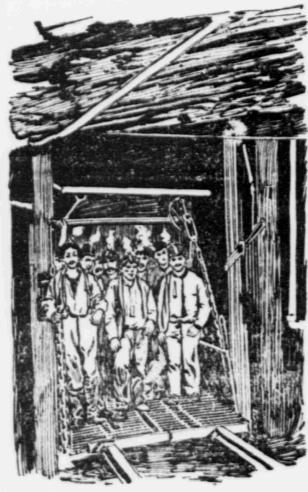
1,100 feet. From this it may also be inferred that there is pretty vigorous and prompt work going on among the diggers and loaders at the bottom of the shaft down deep under ground.

In trying to tell "How Coal Is Mined" use for example one of the principal collieries of the Lehigh and Wilkesbarre Coal company, which I visited just before the strike was ordered. It is situated in the beautiful and pie turesque valley of Wyoming at Plymouth and is one of the greatest anthracite mines in the world, where one tract is worked through a single hoisting shaft, only one pair of engines and one pair of carriages being utilized. It is fairly representative of the collieries of the district and may be taken as a type of the others, though somewhat better equipped in the matter of machinery and appliances than most of them, The main opening of this colliery has an area of 2,000 acres of coal to feed its breaker from the famous red ash vein, which is 22 feet thick beneath nearly the whole of the tract, and there is the Ross seam, which has seven feet of almost pure anthracite, which is also being mined. The red ash vein is pierced at a depth of 365 feet below the surface, while the Ross deposit is 253 feet deep. The shaft has two hoisting compartments, each 6 feet 6 inches wide by 9 feet 3 inches long, while there are the air and pump sections. The length of hoisting from the foot of the shaft in the red ash vein to the breaker loft is 460 feet, and the breaker is one of the most complete in the whole region, being about 100 by 75 feet in size.

There are over 84 miles of tunnels, gangways and slopes in the undergound workings of the mine I visited, which give some idea of the extent of the subterranean caverns in which the miners dig the coal and deposit it at the foot of the shaft to be sent up to the breakers on the surface. The hoisting apparatus in this shaft consists of a pair of first motion engines connected directly with the drum shaft, the cylinders being 22 inches in diameter with a 48 inch stroke. There are two spiral cone drums, each 4 feet 1 inch long and 7 feet in diameter at the small end and 9 feet at the large end. The cage, or hoisting carriage, weighs 4,990 pounds, and an empty mine car weighs 2,250 pounds. The capacity of these cars is 86 cubic feet, or about two and one-tenth tons per

The coal when received from the mine cars at the loft of the breaker is dumped automatically on the bars leading to the roll shoots, and the car Awarded Gold Medal at Atlanta Exposition. is returned to the cage which next descends. The coal passes on the inclined platform to the rolls, the smaller clined platform to the rolls, the smaller Rye Whiskey sold

Rye Whiskey sold proper receptacles through the apertures in the bars, while the lump coal is crushed by the set of rolls, which are 4 feet long and 30 inches in di- R. F. BALKE & CO., Proprietors, ameter, the sharp teeth diminishing the size of the lumps of coal so that it is distributed through shoots to the screens. The breaker has two cylindrical mud screens for the reception of all sizes of coal 6 feet and 6 inches long. 7 feet in diameter with an inside diameter of 4 feet and 2 inches,



MINERS IN A SHAFT CAR,

there being a double jacket. The authracite passes through these large screens and is then diverted by the various meshes to the smaller screens, of which there is one for the broken and egg sizes 9 feet 3 inches long and 5 feet 9 inches outside diameter, with an inside diameter of 4 feet 6 inches. The three counter screens for chestnut and pea sizes are i3 feet 7 inches long, with an outside diameter of 5 feet 9 inches and interior diameter 4 feet 6 inches. The two main screens for the prepared sizes, sizing all of the stove coal, are 22 feet 8 inches long, with an outside diameter of 6 feet 9 inches and inside diameter of 5 feet 6 inches, and the buckwheat screens are two of them 9 feet 3 inches long and 4 feet 6 inches in diameter, the other two being 18 feet long, with outside diameter 7 feet and inside diameter 4 feet 9 inches. This furnishes an immense screening capacity for the large hoist, and as the coal leaves one screen passing through telegraphs, or shoots, to the next screen it is carefully picked of slate and bene by a large force of

pockets over the cars being loaded for shipment.

The work of the anthracite miner, who, with pick in hand and lamp on cap, goes down into the dark, sultry, almost stifling caverns to dig out the black diamonds which form such a great factor in the world's activities, is no easy task and is fraught with dangers, principal of which are possibilities of gas explosions and the flooding of the mine. At most of the well equipped collieries these dangers are minimized, so far as it is possible, by the erection of great ventilating fans and immense pumping apparatus, but even with these the utmost precaution must be taken to prevent accidents which might in an instant destroy the mine and entomb the miners.

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